THE

AGRICULTURAL MUSEUM:

OMNIS FERET OMNIA TELLUS. VIRG.

Vol. II.] *Georgetown, (Ca.)* Jan. 1811. [No. 7.

FROM THE BATH PAPERS.

ON THE CULTIVATION OF BARLEY.

GENTLEMEN, *S—m, Jan.* 4, 1781.

THE method of raising barley is in general so well understood, that it may perhaps be thought impertinent in me to offer any thing on that head. But as gaining a knowledge of the different modes of practice in different counties seems to be one part of your design, I will take the liberty of sending you a few hints relative to this branch of husbandry.

The best soil for barley is that which is dry and healthy, rather light than stiff, but yet of sufficient tenacity and strength to retain the moisture. On this kind of land the grain is always the best bodied and coloured, the nimblest in the hand, and has the thinnest rind. These are qualities which recommend it most to the malster. If the land be poor, it should be dry and warm; and when so, it will often bear better corn than richer land in a cold and wet situation.

In the choice of your seed it is needful to observe, that the best is of a pale lively colour, and brightish cast, without any deep redness, or black tinge at the tail. If the rind be a little shrivelled, it is the better: for that slight shrivelling proves it to have sweated in the mow. The necessity of a change of seed, by not sowing two years together what grew on the same soil, is not in any part of husbandry more evident than in the culture of this grain, which, if not frequently changed, will grow coarser and coarser every succeeding year.

It has generally been thought that seed-barley would be benefitted by steeping; but liming it has, in many instances been found prejudicial. Sprinkling a little soot with the water in which it is steeped, has been of great service, as it will secure the seed from insects. In a very dry seed time, barley, that has been wetted for malting, and begins to sprout, will come up sooner, and produce as good a crop as any other.

If you sow after a fallow, plow three times at least. At the first plowing, lay your land up in small ridges, and let it remain so during the winter, for the frost to mellow it; the second plowing should bein the beginning of February. In March split the ridges, and lay the land as flat as possible, at the same time harrowing it fine. But in strong wet lands (if you have no other for barley) lay it round, and make deep furrows to receive the water.

I have often taken the following method with success: On lands tolerably manured, I sowed clover with my barley, which I *reaped* at harvest; and fed the clover all the following winter, and from spring to July, when I fallowed it till the following spring, and then sowed it with barley and clover as before. Repeating this method every year, I had very large crops: but I would not recommend this practice on poor light land.

We sow on our lightest lands in April, on our moist lands in May; finding that those lands which are the most subject to weeds produce the best crops when sown late.

The common method is to sow the barley-seed broadcast at two sowings; the first harrowed in once, the second twice; the usual allowance from three to four bushels per acre. But if farmers could be prevailed on to alter this practice, they would soon find their account in it. Were only half the quantity sown equally, the produce would be greater, and the corn less liable to lodge: for when corn stands very close, the stalks are drawn up weak, and on that account are less capable of resisting

the force of the winds, or supporting themselves under heavy rains.

From our great success in setting and drilling wheat, some of our farmers tried these methods with barley, but did not find it answer their expectations, except on very rich land.

I have myself had eighty stalks on one root of barley, which all produced good and long ears, and the grain was better than any other; but the method is too expensive for general practice. In poor land, sow thin, or your crop will be worth little. Farmers who do not reason on the matter, will be of very different opinion; but the fact is indisputable.

When the barley is sown and harrowed in, the land should be rolled after the first shower of rain, to break the clods. This will close the earth about the roots, which will be a great advantage to it in dry weather.

When the barley has been up three weeks or a month, it is a very good way to roll it again with a heavy roller, which will prevent the sun and air from penetrating the ground to the injury of the roots. This rolling before it branches out, will also cause it to tiller into a greater number of stalks; so that if the plants be thin, the ground will be thereby filled, and the stalks strengthened.

If the blade grows too rank, as it sometimes will in a warm wet spring, mowing is a much better method than feeding it down with sheep, because the scythe takes off the rank tops; but the sheep, being fond of the sweet end of the stalk next the root, will often bite so close as to injure its future growth.

By attending to what I here recommend, many of our farmers usually get forty bushels of barley per acre from land of no extraordinary quality. On some that is rich, I have had fifty two bushels without manure; but I never sow more than ten, and often only eight pecks of seed per acre.

I am, &c. J. S.

FROM THE AMERICAN WATCHMAN.

Every man who wishes well to the interest of his country, must be pleased with that effort of genius the steam boat; as the fears that it would not succeed, and indeed even the prejudices that existed against the invention, have almost ceased. The immense advantages that may be derived from their general introduction as passage boats, or their offering to all, a greater degree of certainty (as regards time) than land conveyance, and a superior degree of accommodation to the best constructed water packets. In those two points there is a vast difference in favor of the steam boat, and every person acquainted with them will add many more.—But one matter I mean to insist upon as of even superior importance, when compared with land conveyance, is the diminution of horse labor, which all ought to regard as of great consequnce, as those useful animals may, by employing steam boats in the place of land carriage, be applied to other purposes—and this is the more desirable from the great abuse practised on so valuable an animal. It is not necessary at this time to comment on the cruelty exercised on them, by over drawing—'tis sufficient to say, many persons think themselves not at liberty to make use of the stage on that account, and those are well pleased to discover that the introduction of steam boats will be a mean of exempting horses in a degree, from the severity of this usage.

In the past year an expectation was entertained that a line of boats, and stages, would be established from Philadelphia to Baltimore, by way of Wilmington and Elkton—and it was understood that funds were obtained for carrying the plan into effect—but for some reason not known, the business has remained suspended at least, and it was apprehended it had been given up. But the appearance of the steam boat here has revived among our citizens, the wish for a permanent establishment of

the kind, and it is to be expected it will take place, if found sufficiently profitable. In order to lead to an examination of this question, that a necessary degree of information may be obtained, I shall take the liberty to state what I know by inquiries made at different times on this subject.

It appears to be difficult to ascertain the cost of a steam boat of any dimensions—reports have made it amount to 20,000 dollars. Possibly the first boat of the kind, cost that sum, after all the expensive experiments to bring the plan to perfection—but at this time the writer, after various information on the subject, would be disposed to place it much below that sum.—But let us suppose the cost of a boat adapted to the Chesapeake bay to be 20,000 dollars, and that it requires three on that bay, to complete the proposed establishment, and we have 60,000 dollars—that two more from Philadelphia to Wilmington will be required, at a cost of 15,000 dollars each, and we have Dolls. 90,000

Though this probably exceeds what the actual cost would be by many thousands.

Five stages for conveying passengers from Wilmington to Elkton, at 300 dollars each,	1,500
Forty horses for them at 150 dollars each,	6,000
Four waggons for baggage,	800
Twenty horses for do. at 120 dollars each,	2,400
The whole amount dolls.	100,700
Six per cent. on this sum as the annual interest is,	6,042
Fifteen per cent. for wear and tear,	15,105
Fifteen per cent. profit allowed,	15,105
	36,252

The whole number of passages from Philadelphia to Baltimore, by the New Castle packets, have varied from

12 to 13,000 per annum. Suppose this establishment in the first year, should command one half of these or 5,000 full passages at 5 dollars each is Dolls. 25,000

The passages to and from Wilmington to Philadelphia in the packets, appears to average about 40 per day for 9 months in the year—i. e. 9,600 passengers at one dollar, is 9,600

The passengers by Brinton's, Anderson's, and Cook's stages may amount, on an average of the year, to 12 per day up and down, making for 300 days, 7,200.

Take one half of these and we have, 3,600

The passengers by the three stages that pass through this town daily from Philadelphia to Baltimore may be averaged at 13 each way, for 300 days is 7,800, if the half of these prefer the boat we have, at five dollars each, 19,500

Dolls. 57,700

These several sums make per annum on a capital of 100,700 dollars, or on an annual expenditure of 36,252

Leaving an annual balance of Dolls. 21,448

in favor of the establishment; but probably enough is not allowed in the first instance for a capital, though from the admission of $90,000 for the boats, we might suppose the contrary. At any rate there seems substantial reasons for believing the business to be a good one, and worth the attention of such as have money to spare. *An Inhabitant of Wilmington.*

MUSTARD.

The present appearance of our commercial affairs calls for every kind of information, that can tend to lessen the inconvenience resulting from the want of such articles as we have been in the habit of obtaining from abroad. Among the luxuries, if not the necessaries, for

which we have principally been dependent on foreign countries, is the article of Mustard. The Mustard seed of this country is superior to that of England; and it can be as easily and as successfully manufactured here, as in any part of the world. The only difficulty is to procure a sufficient quantity of the seed.

The writer of this article, having been conversant with the method of raising Mustard in England, begs leave to call the attention of our farmers to this subject. He recommends the following method of culture. Select ground, that would produce turnips or hemp, and that which is clear of weeds. Early in the spring, plough and harrow it well. Let two quarts of brown seed be scattered carefully over an acre. When the plants are a few inches high, take out the weeds with a small hoe, and thin the plants so as to leave for each remaining one, a space of from six to nine inches. When the lower seeds are ripe, the middle seeds green, and the top of the plant is in blossom, cut the plants with a sickle, bind them in moderate sized sheaves, and put them in small stacks for a few days. In this situation, the seeds that were green, when cut, will soon ripen. Let the sheaves then be carefully placed on a large cloth, to prevent waste, and conveyed to the barn, where, in a few days, they will be fit for threshing. When well winnowed and cleaned, the seed will command from five to seven dollars a bushel. One acre will generally produce from fifteen to twenty bushels of the seed, which will yield to the farmer a greater profit, than perhaps any other article he can raise.

WOOLEN MANUFACTURE.

FROM THE AURORA.

Sir,

I have read with much satisfaction the first number of the "Archives of Useful Knowledge," published by Dr. Mease: the work cannot but prove very useful at the

present time, when public attention is so laudably directed to the improvement of our domestic resources, the raising of good sheep, and the establishment of manufactories. Dr. Mease has given in the fifth chapter of his work, some remarks upon the mode of preparing wool for the manufactory, and upon the loss arising from scouring; as the process of woolen manufacture has now become a very interesting subject among us, I beg you to publish the following description of it, as carried on in the west of England, where the most cloth is made. My observations are given from practical knowledge:

PROCESS 1st—SCOURING AND DYING.

Spanish wool is bought by the manufacturer ready sorted: to make the first cloth, he purchases two qualities, the 1st and 2d.—When the bags are brought to the mill for use, they are cut open, and the bagging carefully taken off A woman is employed to pick off the straws, lint, &c. The wool is then taken to the scouring house, where a ley had been prepared, composed of one part stale urine and two parts water, one part urine and a small quantity of American pot-ash: the last is more generally used, from an idea, that the pot ash neutralizes the urinary acids When the ley is heated to such a degree, that the hand if immersed in it, can be retained in it but for a short time, a small quantity of wool is taken from the heap, thrown into the ley, and well worked, until the yolk and grease are removed; it is then thrown on railing placed across the furnace, and resting on the curb, so as to be kept warm by the steam. A second portion is then thrown into the furnace and worked as before: by the time this is done, the first lot will be sufficiently drained for washing; it is then taken to the swilling basket, small quantities washed at a time, and the instant it is immersed, the workmen moves it backwards and forwards to open the wool, and that the stream may pass through it to carry off the yolk and grease. When well washed the wool is thrown into baskets with handles, and left to drain 'till dext day; it is then carried to the nearest pasture field, and spread on

pieces of sail-cloth, previously laid down for the purpose, and then left until sufficiently dry: should the day be fair, the wool is taken in before it is quite dry, should it be cloudy, it cannot be made too dry.

REMARKS ON THE ABOVE PROCESS.

In the United States, when the wool is purchased in the fleece, it is necessary to have it well sorted: bagging the wool is attended with considerable loss; the bags, by being tumbled about on the wharves, streets, warehouses, and mill-seats, gather a large quantity of dust, which, passing through the bagging, soils the wool and adds considerably to the weight; the lint from the bagging mixes with the wool, to separate them after finishing, costs two pence sterling per yard, and if not separated will shew white upon the surface.

In scouring, the greasy matter, attached to the wool, chemically combines with the alkali of the ley, forming a saponaceous compound, which mixes with the water in washing, and thereby becomes detached. The natural oil, excluded from the sheep, would be preferable to artificial oil, could the yolk be separated, leaving the oil in the wool, for the yolk makes the wool work hard, and leaves so much filth in the cards of the machines as to fill them up, and prevent them from working: theseparating the one without the other appears impracticable; therefore scowering must be considered absolutely necessary.

Urine, when used, should be stale, that it may have decomposed, for when fresh it abounds with acid; that, which is voided by persons living high and drinking much, is not so good as that of those who live low; for this reason, one bucket full collected from a prison or poor-house, is considered as worth two from families living well.

A ley, when made, may be used for fourteen or fifteen days, by adding a sufficiency of the mixture to keep up the original quantity; when new, it does not scour so well: it is usual to let the old liquor settle, to skim off the

filth, and throw one third of it into a cask to mix with a fresh making.

Wool of the same quality loses in scouring from one to three pounds in twenty: the manufacturer, who by attention to the appearance of raw wool, can acquire sufficient judgment to know which scours off the least, has an advantage of five per cent.

Wool, when scoured, should be used as soon as possible; if two lots are made up, one soon after scouring, and the other three months afterwards, the first will be worth from 10 to 15 per cent. more than the other.

Fine wool should never be scoured after coarse; but coarse may follow fine without any inconvenience or injury.

A MANUFACTURER.

WOOLEN MANUFACTURES.

No. II.

SECOND PROCESS.—*Cleansing the Wool of sand, pitch-marks, &c.*

Until within a few years, this process was performed by women, who, after cutting off the pitch marks, put the wool on hurdles and beat it well with rods, by which means the sand, straws, &c. fell through the hurdles, and were then swept off. The first machine, invented as a substitute, was called a *devil*: the one at the present time in general use is known by the term of *twilly*, which is made with wire: the wool being placed inside, is thrown about with great velocity, and the dirt falls through the wire work.

THIRD PROCESS:—*Oiling.*

A portion of the wool, when cleansed, is spread in a thin layer on the floor, and the oil sprinkled on it with the hand; a second layer is then added and sprinkled as before, and so on until the whole is oiled. One pound of Galliopolis oil is used to ten pounds of wool.

OBSERVATIONS.

After the wool has been oiled, it should remain in a heap for ten or twelve hours, in order that there may be

time for the capillary attraction to carry the oil to all parts of the wool, and that it may be equally impregnated. In summer the oil is sufficiently liquid; in winter an artificial heat is necessary, not only to keep the oil liquid but to keep the wool warm, after having been oiled.

The manufacturer, who is desirous of excelling, will be very particular in choosing his oil as the perfection of the succeeding manipulations will greatly depend upon the goodness of this article: three qualities are essentially necessary; 1. the oil should be clear and limpid, containing little or no mucilage: 2. it should be free from any drying or heating property: 3. it should be such as to form readily a saponaceous compound. Oil, containing mucilage, soon fills the cards with filth, which obliges the workmen either to take the machines often apart and cleanse them, or to suffer the wool to be spun before it has been half scribbled and carded, and thus the yarn becomes gouty and greatly retards the spinning. Oil which has any tendency to dry, so hardens the wool as to make it feel harsh when made up; and if the oil will not readily form a soap with alkali, a greasy stain will be left in the cloth, the fulling will be retarded, and the fibres will never receive a good color. Of course, oils produced from fish or from the fat of animals of any kind, are totally unfit for those uses: neat's foot oil may be used with coarse wool, provided the cards of the engines are coarse, but it contains too much mucilage for fine wool, on which account it should never be used. The best oil known at present is the inferior olive oil, called in England Gallipoli; but it cannot be doubted, that good oil could be expressed from many of the vegetables of this country which would answer every purpose.

FOURTH AND FIFTH PROCESS:—*Scribbling and Carding.*

These processes are performed by two cylindrical machines: the cylinders are clothed with cards made of fine iron wire; a boy stands at the back of the machines, who weighs the wool and spreads a given weight over a

certain measured extent of canvas; the canvas turns in close to the first cylinder of the machines, through which it passes, and falls from the second machine in rolls ready for slubbing.

OBSERVATIONS.

When wool is well cleansed and properly oiled, these processes are easily accomplished. The boy, who spreads the wool, should have some practice, and the superintendant should take care that he spreads it equally, which is of consequence, as the regularity of the thread depends upon it: for should the wool pass into the machine in lumps, the rolls will be irregular and the spun-yarn gouty. The grooves of the roller should be geometrically correct.

SIXTH AND SEVENTH PROCEESSES:—*Slubbing* & *Spinning.*

The slubbing machine contains from thirty to sixty spindles. The rolls are taken from the carder, joined on the canvas at the back by children, and drawn into large yarn. From this machine it is carried to the spinning jenny, containing from forty to eighty spindles, by which it is drawn into threads of proper size.

OBSERVATIONS.

The operations of slubbing and spinning are easily performed, if the wool is of a proper length, new, sound in staple, and well prepared in the previous processes.

The present mode of joining the rolls is very defective, the rolls being larger at the joinings than in other parts, the thread cannot but be irregular. Many attempts have been made to remedy this defect and to save labor, hitherto without effect. I am informed, however, that a perpetual roller has been invented by a native of Connecticut, who has undertaken to establish an extensive woolen manufactory in that state. It is a singular and to this country an important fact, that the woolen manufacturers of Great Britain are indebted to this gentleman for the invention of several of their most valuable machines. A MANUFACTURER.

FROM A LATE GLASGOW PAPER.

Commercial and Agricultural information.

MERINO SHEEP.

France and America are at this time indefatigable in their respective exertions to propagate, as extensively as possible, the breed of Merino sheep. The following Decree by Bonaparte, plainly manifests his view of this important subject.

COPY.

Palace of the Thuilleries, March 8, 1811.

Napoleon, Emperor of the French, King of Italy, Protector of the Confederation of the Rhine, Mediator of the Swiss Confederacy, &c. &c. &c

On the Report of our Minister of the Interior, and our Council of State having heard the same, we have decreed as follows:

FORMATION OF DEPOTS OF MERINO RAMS.

Article 1. In the course of the year 1811 and 1812 there shall be formed sixty Depots of Merino Rams.

2. Each of these Depots shall consist of at least one hundred and fifty, or at most two hundred and fifty rams.

3 They shall be intrusted to land owners, or farmers, who shall maintain and take care of them, receiving the profit which arises from the fleece, and an annual indemnity, to be, in the first instance, regulated by our Minister, according to the price of fodder and other local circumstances.

4. When the season shall arrive, the rams shall be distributed gratuitously among the owners of the native flocks, who shall take care of them, shall be answerable for them, except in cases of unavoidable accidents, and shall return them to the Depot, after using them.

5. The number of Depots shall be annually increased for seven years, till there shall be five hundred.

6. Their situations shall be determined by our Minister of the Interior, according to the wants of breeders, and other local circumstances.

7. In order to form these depots, all the Rams shall be taken which are on our Imperial Farms, except a reserve for their own wants; all those, which shall in future be produced thereof; all those, which arrive in flocks, imported from Spain by our orders; and all those, which shall from time to time be bought of individuals, they being ascertained by the inspectors, of whom mention will be made below, to be of pure race, without admixture.

8. Every Owner of a flock, therefore, which is known to be of pure blood as above described, is forbidden to cause any ram whatever to be castrated, until one of our said Inspectors shall have examined the animals, both old and young; shall have given to the sheep Owner an attestation thereof; shall have chosen rams for the depots, and shall have licensed the castration of those left as defective, which he shall mark for that purpose. The surplus shall be bought from time to time on account of government.

9. Every Owner of a Flock of the mixed breed, who is within the depot, and to whom the depot can furnish rams for his ewes, shall be held bound to cause his males to be castrated.

10. Any breach of the articles shall be ascertained by the Inspectors of the flocks, or, at their requisition, by the Officers of the Police, and punished by confiscation of the castrated animals, in the case described by the article eight, and the animals not castrated, in the case described by article nine; and further, by the penalty of not less than one hundred, and not more than one thousand francs, which shall, however, be doubled if the offence be repeated.

11. There shall be for the superintendance and inspection of the depots, for the purpose of making purchases, and exercising the police, four Inspectors General, and a common Inspector for each district, the extent of which shall be regulated by our Minister of the Interior.

12. The Inspectors General shall be charged to visit, once a year, every depot, and every flock of pure or improved blood, each in that part of the Empire which shall be assigned to him; make purchases of rams on account of Government, comprehending all the information which he can obtain with respect to this branch of rural economy.

13. The Common Inspectors shall superintend the depots, distribute the rams for the season, visit the flocks which they are serving; prescribe salutary measures, and cause them to be executed; inspect the pure and improved flocks, as well as correspond with the Minister of the Interior, the Prefect and Inspector General, under whom they shall be placed.

14. The Inspectors Generals shall have a salary of eight thousand francs per annum, and four thousand francs for the expences of their circuit.

15. The Common Inspectors shall have a salary of eight thousand francs per annum and four thousand francs for the expences of their circuit.

16. To carry the preceding measure into execution, there shall be placed, at the disposal of our minister of the Interior, a fund of 600,000 francs for 1811, and successively for other years, the sum necessary to complete and maintain the Depots, till the system of amelioration shall be fully attained.

Our ministers of the Interior, of Finance, and the Treasury, are charged, each as far as it concerns him, with the execution of the present decree, which shall be inserted in the Bulletin of laws.

(Signed) NAPOLEON.

By command of the emperor.

H. B. Duke of Bassano.

The following Article will give some idea of the vast scale on which Breweries are conducted in England.

A GREAT BREWERY.

Among the numerous interesting things in London, the breweries had never, as yet, come under my observation. Not that I felt no interest in these important manufactories, but, like many other objects of curiosity here, they had never been attended to, because no convenient season had occurred, and I believe I should have left London without seeing them at all, had not the wishes of a manufacturing friend in America, led me to attend to certain particulars of the process.

I happened to possess the means of an easy introduction to the brewery of Meux & Co. and every thing was explained to me with the greatest civility. The process is substantially the same with that which is practised in our cities on a smaller scale.

The barley is first converted into malt, by steeping it in water, and spreading it out on a floor, where it lies till it has begun to vegetate; at a certain period of the vegetation, the farinaceous matter of the barley becomes converted into a substance resembling sugar, and if the vegetation were suffered to proceed, this saccharine matter would become sour, but, before this takes place, the barley is removed to another floor, where, by a judicious application of heat it is dried: the vegetation ceases, the chemical changes of the barley are arrested, and malt, the substance thus produced, although nearly the same in its external form, is totally different in its chemical propensities. It contains substances of several kinds, but the principal one and that which is chiefly important to the brewer is sugar.

The malt is ground, and is then steeped in large tubs, with constant stirring, either by machinery or by hand; this process is called mashing. The infusion thus obtained is called wort, and this is mixed with hops and boiled, till the hydrometer indicates it to be sufficiently strong,

when it is drawn off and placed in large shallow vats, to cool; the cooling is much accelerated by agitation, and by constant currents of air, admitted through proper apertures. After being cooled, it is again drawn off and deposited in large vats to ferment, and yeast is added to enable the fermentation to begin.

Hitherto there is no spirit in the liquor; it is merely an infusion of malt and hops. Soon after being transferred into these vats, it begins to ferment; froth covers the surface, and carbonic acid gas is extracted in abundance. This being heavier than common air, runs over the sides of the vats, in a constant stream, which immediately extinguishes a candle, and destroys any animal held in its course. If this fermentation be not stopped at a certain point, viz. that at which the spirituous principle is completely formed, an acid will be generated, and the spirit of wine will become vinegar.

To prevent this, it is necessary to cut off, in a great measure, the communication with the atmosphere, and therefore the liquor is drawn off into vats, where it is kept till it is put into barrels to be carried to the consumer.

The buildings, the machinery, and the various means necessary for accomplishing all this on the largest scale, formed the subject of my observation this morning. It will be unnecessary to enter into minute details, for a few facts will convince you of the magnitude of the establishment.

Except the transferring of the liquor into barrels and carrying it about the city, all the work of the brewery is performed by steam engines, of which there are here two; one has the power of thirty horses, and the other of forty-four; still one hundred and fifty men are employed, besides seventy or eighty dray-horses, which go about London to distribute the liquor, and to do other services connected with the manufactory. When we speak of a London dray horse, we must understand an animal which in size resembles an elephant rather than a horse; they are from sixteen to eighteen hands high, and wonderfully large in every proportion.

There are in this brewery seventy-one large vats to contain the beer after it is manufactured.—The smallest vat contains about three thousand barrels, and the largest twenty thousand. They are all about twenty-seven feet high; the largest is sixty seven feet in diameter; a coach and four might turn round in it, and a vessel of one hundred tons might float on the surface of the liquor; it is begirt with iron hoops, the smallest of which weighs a ton, and the largest three tons; a numerous party has dined in the vat; it cost ten thousand pounds sterling; the liquor which it holds is worth forty thousand pounds, and, of course, when it is full, it is worth fifty thousand. The year before the last, they brewed in this establishment 170.403 barrels. After stating these facts, it is quite superfluous to expatiate on the magnitude of the manufactory

There is only one in London on a more extensive plan;—I allude to the brewery of Whitebread & Co.—this however is not much larger, and it has no vat of so great capacity. It has once brewed 200,000 barrels in a year, but does not generally brew more than Meux and Co's. It has a steam-engine of the power of seventy horses, and the cisterns for cooling the liquor, would, if extended on the ground, cover about five acres.

Besides a multitude of smaller breweries, there are in London twelve of these capital establishments; the two most important I have already mentioned. Three of the others brew above 100,000 per annum, and the rest, from that quantity to 30,000.

Such are the establishments, which supply so large a part of the civilized world with the nutritious malt liquors.

Immense quantities of porter and beer are consumed in London; they are very cheap and nutritious, and nothing is more common than to see carmen and carriers in London, stopping their work for a short time, and refreshing themselves with a pint of porter and a lunch of wheat bread.

There can be little doubt that porter, from its nutritious qualities, contributes much to that florid and robust ap-

pearance which the English labouring people possess in so remarkable a degree, and which is found more or less in all ranks.

[*Professor Silliman.*]

PEACH TREES.

At a meeting of the Philosophical Society, on Fridxy, October 3d, 1800.

ON MOTION,

Resolved, That the premium offered for the best method of preserving Peach Trees, be divided equally between Mr. John Ellis, of New-Jersey; and the author of a piece signed XYZ. The letter accompanying this piece being opened, the author proved to be Thomas Coulter, Esq. of Cumberland Valley, Bedford county, Pennsylvania.

These papers were ordered to be communicated to the public, in the newspapers.

J R. COXE, Sec'ry.

Account of a method of preventing the premature decay of PEACH TREES, *by* John Ellis, *of New Jersey.*

The decay of Peach Trees, is owing to a worm which originates from a large fly, that resembles the common wasp—this fly perforates the bark, and deposits an egg in the moist or sappy part of it:—The most common place of perforation is at the surface of the earth and as soon as the worm is able to move, it descends into the earth, probably from an instinctive effort to avoid the winter's frost. This may be ascertained by observation, the tract of the worm from the seat of the egg being visible at its beginning, and gradually increasing, in correspondence with the increasing size of the worm; its course is always downwards. The progress of the young worm is extremely slow, and if the egg is deposited at any considerable distance above the surface of the earth, it is long

before the worm reaches the ground. The worms are unable to bear the cold of winter unless covered by the earth, and all that are above ground after frost are killed.

By this history of the origin, progress and nature of the insect, we can explain the effects of my method, which is as follows:—In the spring, when the blossoms are out, clear away the dirt so as to expose the root of the tree, to the depth of three inches; surround the tree with straw about three feet long, applied lengthwise, so that it may have a covering one inch thick, which extends to the bottom of the hole, the butt ends of the straw resting upon the ground at the bottom—bind this straw round the tree with three bands, one near the top, one at the middle, and the third at the surface of the earth, then fill up the hole at the root, with earth and press it closely round the straw. When the white frosts appear, the straw should be removed and the tree should remain uncovered until the blossoms put out in the spring.

By this process the fly is prevented from depositing its egg within three feet of the root, and although it may place the egg above the distance, the worm travels so slow that it cannot reach the ground before frost, and therefore is killed before it is able to injure the tree.

The truth of the principle is proved by the following facts. I practised this method with a large number of Peach Trees, and they flourished remarkably, without any appearance of injury from the worm, for several years, when I was induced to discontinue the straw with about twenty of them—"all those which are without the straw have declined, while the others which have had the straw, continued as vigorous as ever."

GENTLEMEN,

Having the opportunity of seeing and reading your advertisement in the public papers, which showed your desire and wishes for the light and knowledge of the culture and management of Peach Trees, to prevent their premature death—the subscriber has the vanity to hope and expect you will find the light of your wishes for that

purpose effectually opened in the following lines, from actual experience for forty-five years; both in the Delaware state and upper parts of Pennsylvania.

First, the principal cause of Peach Trees dying whilst young, is owing to planting, transplanting, and pruning the same stock; which causes the stock to be open and tender and the bark of the tree very rough: The roughness of the bark gives opportunity to insects of sundry kinds to lodge and breed in it; and birds of sundry kinds search after these insects, for their support; and with their sharp bills, wound the stock in many places, from which wound the sap or liquid substance of the tree is drawn out, which congeals into a hard glassy substance; and never fails of killing, or rendering the tree useless in a very few years. Now, to prevent all of which, transplant your Peach Trees, as young as possible, where you mean them to stand; if, in the kernal, so much the better—because, in that case, there will be no check of growth, which always injures peach trees. Plant your Peach Trees sixteen feet apart, both ways; except you would wish to take your waggon through the orchard to carry the peaches away; in that case give twenty-four feet distance to every fifth row, one way, after transplanting.

You may plough and harrow amongst your Peach Trees, for two years, paying no regard to wounding or tearing them, so that you do not (by so doing) take them up by the roots. In the month of March, or April, in the third year after transplanting, cut them all off by the ground; plough and harrow amongst them as before, taking special care not to wound or tear them in the smallest degree, letting all the sprouts or scions grow that will grow, cut none away supposing six or more should come from the old stump; the young scions will grow up to bearing trees almost instantaneously, on account of the roots being strong. You will observe one thing in particular; that is to let no kind of beasts into your peach orchards, hogs excepted, for fear of wounding the trees; as I observed before, the least wound will

greatly injure the tree, by draining away that substance which is the life thereof; although the tree may live many years, the produce is not so great, neither is the fruit so good. After the old stock is cut away, the third year after transplanting, the sprouts or scions will grow up, all round the old stump, from four to six in number. No more will come to maturity, than the old stump can support and nourish; the remainder will die before ever they bear fruit. These may be cut away, taking care not to wound any part of any stock or the bark thereof.—The sprouts growing all round the old stump, when loaded with fruit, will bend and rest on the ground in every direction, without injuring any of them, for many years, all of them being rooted in the ground, as though they had been planted. The stocks will remain tough, and the bark smooth for twenty years and upwards, if any of the sprouts or trees from the old stump should happen to split off, or die, cut them away as before observed, they will be supplied from the ground, by young trees, so that you will have trees from the same stump for one hundred years, as I believe. I now have trees thirty-six, twenty, ten, five and down to one year old, all from the same stump. The young trees coming up, after any of the old trees split off or die, and are cut away, will bear fruit the second year. But this fruit will not ripen so easily as the fruit on the old trees from the same stem.—Three years after the trees are cut off by the ground, they will be sufficiently large and bushy topt to shade the ground, so as to prevent grass of any kind from matting or binding the surface in the least degree, so as to injure the trees; therefore ploughing is useless, as well as injurious; useless, because nothing can be raised in the orchard, by reason the trees will shade all the ground, or nearly so; injurious, because either the roots, stock or branches will be wounded; all or any of which will be hurtful to the trees. Neither is it necessary ever to manure Peach Trees, as manured trees will always produce less and worse fruit, than trees that are not manured; although by manuring your Peach Trees, they will grow

larger, and look greener and thicker in the boughs, and cause a thicker shade, yet on them will grow very little fruit, and that little will be of a very bad kind—generally looking as green as the leaves, even when ripe, and later always than those that never have been manured.

Peach Trees never require a rich soil; the poorer the soil the better the fruit—a middling soil produces a more bountiful crop.

The highest ground is the best for Peach Trees, and the north side of hills the most adviseable; it keeps back vegetation, by which means the fruit is often preserved from being killed by late frosts in the month of April, in the Pennsylvania latitude.—These observations from actual experience I have made. Whether they meet the approbation of the society or not, I wish that honorable body to publish the foregoing piece for the information of the inhabitants of Pennsylvania and the adjacent states, as it must and will be of general utility to them.

A few days ago a gentleman from Monongahela county in Virginia, called at my house to feed his horse; in leading his horse from the barn, he observed my Peach orchard, and asked me, who instructed me to plant and cultivate Peach Trees; I told him that observation and experience were my teacher and instructor. The gentleman observed that Colonel Luther Martin, in the lower parts of Maryland, and another gentleman near the same place, whose name he could not recollect, were pursuing the same plan advantageously. XYZ.

MACHINERY FOR SPINNING FLAX.

Two very ingenious mechanics, living at Montpelier, within the pale of the Green-Mountains in Vermont, having a laudable zeal to improve the mechanic arts with advantage to themselves and their country, and further stimulated by the generous Premium* offered by the

* One million of Francs, or one hundred and eighty-seven thousand four hundred dollars.

French government, for the best method to spin Flax, &c. engaged in the invention of machinery for that purpose; and it is with pleasure that the writer of this article can say, with the fullest assurance, that they have accomplished this grand design. This machinery has stood the test of experience; the principle is entirely new, and as simple as perfect. The machinery is now in actual operation, and has run (more or less) for the six months past.

The principle, if rightly applied, with suitable materials and corresponding machinery, will produce every kind of cordage manufactured from flax or hemp, which is necessary for the convenience of mankind, from the coarsest rope-yarn to the finest cambrics.

The economy produced by this machinery, when contrasted with cotton spinning, is three eighths, and upon manual labor four-fifths.

This astonishing improvement in the art of spinning, which mechanics and men of science in all parts of the globe, have labored in vain to produce, seems peculiarly reserved to be brought forth by the new world, and at a time the most fortunate.

It is worthy of remark, that the authors of this invention are sober, industrious men, but in very indigent circumstances; and it is feared, unable to prosecute to advantage so noble a design. P. *Bost. Chron.*

MANUFACTURES.

An association has been formed in Pittsburg (Penn.) called the Pittsburg Manufacturing Company, with a capital of 500,000 dollars. The objects of this company are, to make insurances against losses by fire, and on boats and vessels navigating the western waters; to raise a fund for the purpose of assisting the farmer, the mechanic and the merchant; by the purchase and sale of articles of domestic growth and manufacture, and advancing and lending money on deposit of such articles, and when the capital stock of said institution shall permit, to lend money on interest for the benefit of the company.